

Remarks/Arguments

Claim Rejections

Examiner:

Claims 1, 3-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. (U.S. 6,186,800 B1).

Klein teaches a structure for mounting a circuit board (2, fig.1) to a housing (3, fig.1) a data processing device (1, fig.1) comprising:

A mounting post (10a, fig.4) secured to the circuit board (see col.5, lines 44-51) and having a groove (18, fig.4) formed on outer surface thereof (claim 1).

A retaining unit (9a, fig.4) having a slot (11a, fig.4) with an open end (13, fig.4) for receiving the mounting post through the groove along a direction parallel to a surface of the housing (shown in fig.1; also see col.5, line 15-24) (claim 1).

Wherein the housing, the retaining unit and the mounting post are made of metal (see col.4, lines 49-54, and col.5, lines 21-24; well known material for electrical connection is metal) (claim 3).

Wherein the circuit board has a through hole (21, fig.4) for receiving one end (19a, fig.4) of the mounting post and the mounting post is secured to the circuit board at the through hole (see col.5, lines 38-62) (claims 6 and 8).

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Klein fails to teach the retaining unit being provided on a surface of the housing and stamped out from the housing. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Klein with a retaining unit stamped out from the housing, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art; and the method of forming the device is not convincing as to the issue of patentability of the device itself, since the structure of the device is not changed. See MPEP 2144.04 VI A, and MPEP 2113.

Response:

Claim 1 has been amended to overcome this rejection by adding the limitation that the mounting post is permanently secured to the circuit board. Support for the permanence is found on Page 4, Paragraph 18 of the present invention that states "the mounting posts 28 are secured to the circuit board 24 by using surface mount technology". No new material has been introduced.

The examiner references Klein, Col.5, lines 44-51, to shown that the mounting boss of Klein is secured to the circuit board. The cited passage states "a screw placed through the motherboard will make electrical connection with [] the mounting post 10a..." which is followed by "the screw will force the conductive surface 20a on the bottom side of the motherboard against the first end 19a of the mounting post 10a" (Col.5, lines 52-54).

The applicant considers the use of a screw to secure the mounting post 10a to the motherboard as "removably

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securing" as opposed to "permanently securing". Because the mounting post of Klein is fixed to the chassis (Col.5, lines 20-21), if the mounting post of Klein was also permanently secured to the motherboard as suggested by the examiner, it would be impossible to remove the motherboard from the chassis, obviously making the modification unfit for its intended use (MPEP 2143.01).

Furthermore, Klein et al. disclose a device for providing grounding and support for a printed circuit board in a computer system (Col.1, lines 5-8). The disclosed device includes the stated advantage of utilizing a standard chassis with both "off-the-shelf" motherboards and "specially manufactured" motherboards (Col.10, lines 30-33). The disclosed standard chassis "is not illustrated in Fig.4, but would be coupled to a base 17 of the mounting boss 10a" (Col.5, lines 20-21).

When attaching a standard "off-the-shelf" motherboard to the chassis, a screw is placed through the motherboard to make an electrical connection between the motherboard and the mounting post 10a and to force the conductive surface 20a on the bottom of side of the motherboard against the first end 19a of the mounting post 10a (Col.5, lines 48-54). In other words, when using a standard "off-the-shelf" motherboard, the motherboard is attached to the mounting post with the use of a screw, and no bracket is necessary.

Therefore, the portion of the disclosure that concerns the "retaining unit" of Klein also concerns the use of specially manufactured motherboards. It is only when a specially manufactured motherboard, such as illustrated in Figs.2-4, is attached to the chassis that a bracket is used to engage the mounting post (Col.5, lines 47-63).

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The examiner states that a reversal of the parts (if the positions of the mounting post and the bracket are reversed) in the disclosure of Klein would make the present invention obvious, citing MPEP 2144.04 VI A. This passage refers to situations where the respective parts of the two disclosures are similar and where the reversal does not alter the function of the reference device.

In this Office action, the examiner seems to be saying that the bracket of Klein (Fig.4, item 9a) is structurally and functionally similar to the retaining unit (Fig.3, item 32) of the present invention. The applicant believes that the cited figures clearly show a difference in structures and that the differences are critical to the respective functions of the two different devices. The bracket of Klein (Fig.4, item 9a) is "coupled to the motherboard 2a to support the motherboard." (Col.4, lines 37-38). A tab 14a (or hook Fig.8, item 38) on the bracket 9a "is for coupling the bracket 9a to the motherboard" (Col.4, lines 61-62).

It is noted again that the disclosed bracket 9a is only used on specially manufactured motherboards such as are illustrated in Figs.2-4 of Klein and the bracket 9a is not used with standard, off-the-shelf motherboards. Therefore, the purpose of the disclosed bracket 9a is to force physical and electrical connection between the bottom side of the specially manufactured motherboard and the first end 19a of the mounting post 10a (Col.5, lines 55-59).

As previously stated, "the unique circuit board grounding and support structure" of Klein "provides for a device capable of electrically connecting a variety of motherboards to a standard chassis." The standard chassis

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"may be employed with both off-the-shelf and specially manufactured motherboards." (Col.10, lines 27-32). If, as the examiner suggests, the respective locations of the bracket 9a and the mounting post 10a were reversed, the bracket 9a loses its intended purpose of forcing a connection between a specially manufactured motherboard and the mounting post (MPEP 2143.01). Additionally, the entire device would lose the intended functionality of enabling the attachment of a standard, off-the-shelf motherboard with "a screw placed through the motherboard" because "a screw placed through the motherboard" would only attach the motherboard to the mounting post, not to the chassis, which would, in turn, require a previously unneeded connection (MPEP 2143.01).

Not only does the suggested reversal alter intended functions of the device of Klein but also the applicant is unable to locate any text in the cited prior art providing any motivation or reason for making the suggested reversal. MPEP 2144.04 VI C states "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of the appellant's specification, to make the necessary changes in the reference device."

It may be possible to envision a scenario in which the off-the-shelf motherboard may still be attached to the "reversed" chassis of Klein, but the applicant is unable to find any such teaching or suggestion in the disclosure of Klein. Said attachment would, at a bare minimum, involve the additional expense of an otherwise unneeded bracket

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and the previous prior art inconvenience of screws. It is difficult for the applicant to understand how additional expense and inconvenience can be used as motivation to modify a disclosure.

Therefore, the applicant believes that the present invention is structurally and functionally different from the prior art and respectfully requests reconsideration of the amended claim 1 and claims 3-4, and 6-8 dependent thereon.

Examiner:

Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. in view of Scholder et al. (U.S. 5,490,038).

Klein discloses the claimed invention except for a stopper provided on the housing. However, Scholder teaches a stopper (66, fig.3) provided on a housing (16, fig.3) of a data processing device (see col.3, lines 2-6) for stopping a circuit board (12, fig.3) from moving out of the housing along a direction parallel to a surface (surface of 14, fig.3) of the housing when the circuit board is installed, comprising a movable rod (68, fig.3) being movable from a first position (shown in fig.3) to stop the circuit board and a second second position (not shown) to release the circuit board by a spring (not shown, see col.3, lines 60-62). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Klein with the stopper taught

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by Scholder so that the circuit board may be firmly and stably installed in position.

Response:

As discussed in the previous section of this response, claim 1 has been amended to overcome this rejection.

Additionally, to match a limitation of the present invention's claim 1, the examiner references Klein, Col.5, lines 44-51, to shown that the mounting post of Klein is secured to the circuit board. Also disclosed by Klein is that a base 17 of the mounting boss 10a the mounting boss 10a would be coupled to a standard chassis (Col.5, lines 20-21).

If, as the examiner claims, one end of the mounting post is secured to the motherboard and the other end of the mounting post is coupled to the chassis, the applicant cannot understand how any motivation or suggestion can be found in the cited prior art to modify the device of Klein by including the stopper of Scholder. It would be completely unnecessary because the motherboard is already fixed in place. The inclusion of a stopper would merely be an expensive redundancy and as such should not be considered obvious.

Therefore, the applicant respectfully requests reconsideration of claims 2 and 5 in view of the amended claim 1.

Examiner:

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Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. in view of Scholder et al. (U.S. 5,490,038).

Klein discloses the claimed invention as discussed in paragraph 2, hereinabove, except a stopper provided on the housing of the data processing device. However, Scholder teaches a stopper (66, fig.3) provided on a housing (16, fig.3) of a data processing device (see col.3, lines 2-6) for stopping a circuit board (12, fig.3) from moving out of the housing along a direction parallel to a surface (surface of 14, fig.3) of the housing when the circuit board is installed, comprising a movable rod (68, fig.3) being movable from a first position (shown in fig.3) to stop the circuit board and a second second position (not shown) to release the circuit board by a spring (not shown, see col.3, lines 60-62). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Klein with the stopper taught by Scholder so that the circuit board may be firmly and stably installed in position.

Response:

Similarly to claim 1, and for the same reasons, claim 9 has been amended to overcome this rejection by adding the limitation that the mounting post is permanently secured to the circuit board. Support for the permanence is found on Page 4, Paragraph 18 of the present invention which states that "the mounting posts 28 are secured to the circuit board

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24 by using surface mount technology". No new material has been introduced.

Furthermore, when compared to the amended claim 1, the amended claim 9 additionally has the limitation of a stopper. For the reasons cited in the section of this response concerning claim 2, modifying the disclosure of Klein with the inclusion of the stopper of Scholder is unmotivated and therefore unobvious.

Therefore, the applicant believes that the present invention as claimed in the amended claim 9 is structurally and functionally different from the prior art and respectfully requests reconsideration of the amended claim 9 and claims 10-13 dependent thereon.

Examiner:

Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. in view of Scholder et al. (U.S. 5,490,038).

Klein teaches a data processing device (1, of fig.1 comprising:

A circuit board (2, fig.1) (claims 14 and 17)

Amounting post (10a, fig.4) being secured to the circuit board (see col.5, lines 44-51) and having a groove (18, fig.4) formed on outer surface thereof (claims 14 and 17)

A housing (3, fig.1) having a surface provided with a retaining unit (9a, fig.4) having a slot through the groove along a direction parallel to a surface of the housing (shown in fig.1; also see col.5, lines 15-24) (claims 14 and 17).

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Wherein the housing, the retaining unit and the mounting post are made of metal (see col.4, lines 49-54, and col.5, lines 21-24; well known material for electrical connection is metal) (claim 19).

Wherein the housing has a through hole (21, fig.4) for communicating with a threaded hole (22, fig.4) of one end (19a, fig.4) of the mounting post and the mounting post is secured to the circuit board at the through hole (see col.5, lines 38-62) (claims 15-16).

Klein fails to teach a plurality of retaining units being provided on a surface of the housing. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Klein with a plurality of retaining units provided on the surface of the housing, since it has been held that a mere reversal and duplication of the essential working parts of a device involves only routine skill in the art (claims 14 and 17). See MPEP 2144.04 VI A & B.

Klein discloses the claimed invention except a stopper provided on the housing. However, Scholder teaches a stopper (66, fig.3) provided on a housing (16, fig.3) of a data processing device (see col.3, lines 2-6) for stopping a circuit board (12, fig.3) from moving out of the housing along a direction parallel to a surface (surface of 14, fig.3) of the housing when the circuit board is installed, comprising a movable rod (68, fig.3) being movable from a first position (shown in fig.3) to stop the circuit board and a second second position (not shown) to release the

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circuit board by a spring (not shown, see col. 3, lines 60-62). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Klein with the stopper taught by Scholder so that the circuit board may be firmly and stably installed in position (claims 14 and 18).

Response:

Similarly to claim 1, and for the same reasons, claims 14 and 17 have been amended to overcome this rejection by adding the limitation that the mounting post is permanently secured to the circuit board. Support for the permanence is found on Page 4, Paragraph 18 of the present invention which states that "the mounting posts 28 are secured to the circuit board 24 by using surface mount technology". No new material has been introduced.

Furthermore, when compared to the amended claim 1, the amended claim 14 additionally has the limitation of a stopper. For the reasons cited in the section of this response concerning claim 2, modifying the disclosure of Klein with the inclusion of the stopper of Scholder is unmotivated and therefore unobvious.

Therefore, the applicant believes that the present invention as claimed in the amended independent claims 14 and 17 is structurally and functionally different from the prior art and respectfully requests reconsideration of the amended claim 14 and 17 and claims 15-16 and 18-19 respectfully dependent thereon.

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